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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/777,102

02/13/2004

Sun Jin Yun

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03/06/2008

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EXAMINER

DIAZ, JOSE R

ART UNIT

PAPER NUMBER

2815

MAIL DATE

DELIVERY MODE

03/06/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/777,102	<b>Applicant(s)</b> YUN ET AL.	
	<b>Examiner</b> JOSE R. DIAZ	<b>Art Unit</b> 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 30, 2007 has been entered.

### ***Drawings***

2. Figures 1a and 1b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2815

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Calhoun et al. (US 5,017,255).

Regarding claim 1, Applicant's admitted prior art discloses a substrate comprising:

a lower substrate (1) supporting an upper substrate (3) [see fig. 1b of Applicant's disclosure];

a buffer layer (4) formed on an upper surface of the lower substrate (1) [see fig. 1b of Applicant's disclosure]; and

an adhesive layer (2) formed between the upper substrate (3) and the buffer layer (4) so that the upper substrate (3) is removably adhered to the lower substrate (1) by the adhesive layer (2) and the buffer layer (4) [see fig. 1b and paragraph 0006 of Applicant's disclosure] ;

wherein, the upper substrate (3) has a substantially higher flexibility than that of the lower substrate (1) [see paragraphs 0004 and 0009 of Applicant's disclosure].

Applicant's admitted prior art discloses substantially the claimed invention except for a buffer layer having a plurality of shapes with air gaps defined between each of said shapes and spaced apart from each other at regular intervals.

Calhoun teaches a buffer layer (22/30) formed on an upper surface of the lower substrate (40) to have a plurality of shapes (consider each structure 22/30 as shown in figure 5) with air gaps (consider the space between adjacent structures 22/30 and/or

groove formed within recessed surface portion 16 as shown in figure 5) defined between each of said shapes and spaced apart from each other at regular intervals [see fig. 5].

Regarding claim 4, Calhoun discloses that that the plurality of shapes **(22/30)** is arranged on the patterned substrate **(10)**, which has a wide variety of configurations such as squares, circles, ellipses, hexagons and dots [see col. 5, lines 29-35 and figure 3]. Thus, the plurality of shapes **(22/30)** has the same configuration as the patterned structure **(10)**.

Regarding claim 5, Calhoun discloses using 3M Scotch acrylic adhesive, which is an organic adhesive that is capable of withstand temperatures of less than 120 °C [see col. 5, lines 66-68 and col. 7, lines 66-68].

Applicant's admitted prior art and Calhoun are analogous art because they are from the same field of endeavor as applicant's invention. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a plurality of shapes with air gaps defined between each of said shapes and spaced apart from each other at regular intervals in the structure taught by Applicant's admitted prior art. The motivation for doing so, as is taught by Calhoun, is reducing production cost (col. 1, lines 66-67). Therefore, it would have been obvious to combine Calhoun with Applicant's admitted prior art to obtain the invention of claims 1-6.

Regarding claim 2, Applicant's admitted prior art discloses that the lower substrate **(1)** is made of at least one of Si and SiO.sub.2 [see paragraph 0009].

Regarding claim 3, Applicant's admitted prior art discloses the buffer layer (4) is made of at least one of SiO.sub.2 and Al.sub.2O.sub.3 [see paragraph 0007].

Regarding claim 6, Applicant's admitted prior art discloses the upper substrate (3) is made of plastic [see paragraph 0007].

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Huang et al. (6,812,116) discloses a porous silicon layer 12 in figure 6; and Xu et al. (US 6,964,201) discloses transfer substrate (74, 92,98), flexible substrate (82,110) and removable adhesive (90) in figures 5, 6, 7, and 9.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSE R. DIAZ whose telephone number is (571)272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/José R. Díaz/  
Examiner, Art Unit 2815